Remarks

This Response is intended as a full and complete response to the Office Action dated January 26, 2004. In the Office Action, the Examiner indicates that claims 1, 2, 4, 5 and 7-15 are pending in the application and claims 1, 2, 4, 5 and 7-15 are rejected. By this Response, all currently rejected claims continue unamended and comments in response to the Examiner's rejections follow.

REJECTION OF CLAIMS UNDER 35 U.S.C. §103

1. The Examiner has rejected claims 1-2, 4-5, 7, 10, and 12-15 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,311,344 issued May 10, 1994 to Bohn et al. (hereinafter Bohn) in view of U.S. Patent No. 6,587,476, issued July 1, 2003 to Lewin et al. (hereinafter Lewin). Specifically, the Examiner indicates that Bohn allegedly discloses a data communications system in accordance with the subject invention; however, Bohn does not include an Ethernet adaptor circuit in a head end, nor does Bohn teach an Ethernet interface for providing upstream data. Additionally, the Examiner offers that Ethernet is a popular network interface and can be found in most computers for interconnecting with other computers. Lewin allegedly emphasizes this fact and in his Figure 1 shows the use of 10 BaseT Ethernet interfaces for receiving data from subscribers. Additionally, the Examiner also offers that Lewis allegedly teaches in Figure 7 the use of an Ethernet switch to combine the data from individual subscribers. Accordingly, the Examiner concludes that one of ordinary skill in the art would have been motivated to combine the teachings of Lewin with the data communications system of Bohn because Ethernet interfaces are popularly found and Ethernet is capable of providing high bandwidth duplex data communication for subscribers and allows the interconnection to other networks. The rejection is respectfully traversed.

The Examiner continues to rely upon the submission that because Ethernet interfaces are popular equipment found in most computers for interconnecting computers, it would have been obvious to one of ordinary skill in the art to use items, such as an Ethernet switch, to provide for collisionless transmission between different ports. Specifically, in Examiner's Section 6 of his Final Office Action, he offers that the popularity of Ethernet provides motivation to combine the teachings as seen at Col 1, lines 12-24 of Lewin. Specifically, Ethernet creates a need for the service provider to use an Ethernet interface for network access. Residential service subscribers can thus benefit in a similar way that LAN users enjoy. This is all understood and accepted by the Applicant. However, as discussed in further detail below, any such popularity of Ethernet led the particular service provider of Lewin (a telephone company) to improve and adapt its existing twisted pair network, not develop an optical network having the desired features of the subject invention. This is what was meant in Applicant's prior response. That is, the mere popularity of a feature cannot be used as a suggestion or motivation to combine if different methods to solve the problem faced by the inventor exist in the prior art.

What Lewin generally speaks of in the Examiner-cited passage is that cost effective, high speed networks are desirable and that telephone companies are eager to deliver same. The phone companies (and reference's) response to serving this need is thru improved VDSL's, not an optical communications system (having the attendant optical components) as described in Bohn and claimed in the subject invention. Thus, there is an inconsistency between the problem solving techniques of the two references because one system is optically based (Bohn) and the other is twisted pair or 100Base-T based (Lewin). It was never a question or an argument as to whether these two technologies could be combined but rather there is no advantage to be gained by introducing Ethernet as a non-interfering transmission technique to Bohn when Bohn already solves his problem through the multiplexing technologies. This was offered at Applicant's October 28, 2003 submission, pages 3-4. "Bidirectional, non-

interfering transmission of broadband services on a single fiber is accomplished in accordance with the principles of the present invention by judiciously and simultaneously combining wavelength-division, time-division and subcarrier multiplexing on the downstream and upstream transmissions." Bohn, col. 1, lines 56-61. Therefore, Bohn achieves collisionless transmission in a completely different manner than that offered by the subject invention in terms of optical networks. The popularity that the Examiner alludes to at col. 1, lines 12-24 of Lewin is based on the eagerness of telephone companies to deliver broadband services along their twisted pair medium. Therefore, one concludes that it is twisted pair networks that are attempting to find higher bandwidth capabilities beyond VDSL and would look to and benefit from the popularity of Ethernet based on Lewin. Other types of networks are not considered and, in fact, it has been shown by Bohn that the problems can be solved by other techniques besides that of Ethernet. Case law supports this reasoning:

> A "trend" might very well constitute a suggestion or teaching to one of ordinary skill in the art to make "minor" changes from the prior art in accordance with that trend to produce the claimed invention. The existence of a trend depends on the content of the prior art, that is, what the prior art would have taught one of ordinary skill in this art at the time of this invention. Before proceeding to find a trend, it must first be determined whether one of ordinary skill would have had a motivation to combine references to form the trend. Evidence cutting against a trend includes various different methods used in the prior art to solve the problem faced by the inventor. Monarch Knitting Mach. Corp. v. Sulzer Morat GmbH, 45 USPQ 2d at 1981. Cf. In re Chu, 66 F.3d 292, 298, 36 USPQ 2d 1089, 1094 (Fed. Cir. 1995) (when changes from the prior art are "minor" or "simple," an inquiry must be made as to whether "'the prior art provides any teaching or suggestion to one of ordinary skill

in the art to make the changes.'" Quoting Northern Telecom, Inc. v. Datapoint Corp., 908 F.2d 931, 935, 15 USPQ 2d 1321, 1324 (Fed. Cir. 1990))., 45 USPQ 2d at 1982.

Since Bohn disclosed multiplexing technologies for collisionless transmission in optical networks, one skilled in the art would not be motivated to combine the Ethernet features of Lewin's twisted pair network because a different method to solve this problem in optical networks was available. Accordingly, it is respectfully submitted that there is insufficient support in the Examiner's rejections to conclude that it is obvious to combine the cited references to arrive at the claimed invention.

Furthermore, it is simply not permitted to selectively take bits and pieces of a reference and force them together to attempt to arrive at the subject invention. This has been well-established in case law. In this particular case, VDSL's have synchronizing signals (SOC's) that are not compatible with Ethernet protocols (Lewin, Col. 3, line 62- Col 4, line 10). Lewin specifically presents a method and apparatus for encapsulating Ethernet frames using HDLC protocols so that they may be used in VDSL's. As such, it is respectfully submitted that Lewin has presented a solution to the problem of how to integrate high speed data communication links (using Ethernet) to end users in VDSL's. The references must be taken in their entireties, including those portions which argue against obviousness. Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc., 230 U.S.P.Q. 416, 420 Fed. Cir. 1986). It is impermissible within the framework of the 35 U.S.C. § 103 to pick and choose from a reference only so much of it as will support a conclusion of obviousness to the exclusion of other parts necessary to a full appreciation of what the reference fairly suggests to one skilled in the art. Id. at 419. Hindsight is strictly forbidden. It is impermissible to use the claims as a framework to pick and choose among individual references to recreate the claimed invention Id. at 1600; W.L. Gore Associates, Inc., v. Garlock, Inc., 220 U.S.P.Q. 303, 312 (Fed. Cir. 1983). Since Lewin discloses a

solution to improve the speed of DSL and twisted pair communications networks rather than optical networks, it is plain to see that the Examiner has resorted to piecemeal separation of certain features of Lewin (e.g. the Ethernet switch 130) and forced them into Bohn without regard for the basic premise of Lewin. Moreover, the combination of Bohn and Lewin includes a VDSL network which plainly teaches away from the subject invention; thus argues against obviousness.

In Section 6 of the Final Office Action, the Examiner disagrees with the Applicant's arguments that there is no reasonable expectation of success indicated in the offered combination. The Examiner explains the differences between different types of multiplexing technologies (WDM, TDM and subcarrier FDM) and the Ethernet interconnection standard. The Examiner attempts to clarify his point by offering that Bohn provides teaching for multiplexing technologies while Lewin provides teaching for the connection standard. He offers that these two are not exclusive in, for example, any of the multiplexing technologies or techniques does not exclude the use of Ethernet for the connection standard. In response, Applicant respectfully submits that the differences in the teachings between multiplexing technologies and Ethernet interconnection standard are understood. However, it has been previously presented that mutual exclusivity of the technologies is not at issue, rather it is simply not necessary or desired to combine the features of Lewin with Bohn because Bohn has already solved the problem of collisionless upstream transmission by other means.

As such, it is respectfully submitted that the *prima facie* case of obviousness to claim 1 has not been established by the Examiner; hence, withdrawal of the rejection is requested. Furthermore, claims 2, 4, 5, 7, 10, and 12-15 depend, either directly or indirectly from claim 1 and recite additional features thereof. As such, and for at least the same reasons discussed above with respect to claim 1, the Applicant submits that these dependent claims also

fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder. Therefore, the Applicant respectfully requests that rejection be withdrawn.

2. The Examiner has rejected claim 8 under 35 U.S.C. §103(a) as being unpatentable over Bohn and Lewin and in further view of U.S. Patent No. 6,137,607, issued October 24, 2000 to Feldman et al. (hereinafter Feldman). Specifically, the Examiner offers that Bohn and Lewin have been discussed above with regard to claims 1-2, 4-5, 7, 10, and 12-15 and that the difference between the modified communication system of Bohn and Lewin and the claimed invention is that Bohn and Lewin do not include a bias control circuit. Further, the Examiner offers that Feldman describes the operation of a bias control that shuts off a laser (transmitter) in the absence of user data. Therefore, the Examiner concludes that one of ordinary skill in the art would have been motivated to combine the teachings of Feldman with the modified data communication system of Bohn and Lewin.

In response, the rejection is respectfully traversed. As discussed earlier under Section 1 of Applicants' arguments to these rejections, the Examiner has failed to establish the *prima facie* case of obviousness with respect to claim 1 with the combination of Bohn and Lewin. Any additional references used to further establish obviousness of a dependent claim is similarly deficient for at least the same reasons discussed above with respect to claim 1. The Applicant submits that such dependent claims also fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder. Therefore, the Applicant respectfully requests that rejection to claim 8 be withdrawn.

3. The Examiner has rejected claim 9 under 35 U.S.C. §103(a) as being unpatentable over Bohn and Lewin in further view of U.S. Patent No. 6,542,722, issued April 1, 2003 to Sorrells et al. (hereinafter Sorrells). Specifically, the Examiner indicates that the combination of Bohn and Lewin has been discussed above and the differences between that modified communication system and the

claimed invention is that the modulation method is the modulation method for upstream data. Additionally, the Examiner that Sorrells teaches techniques for modulation; therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the modulation method (such as QPSK) as taught by Sorrells in the combined communication system of Bohn and Lewin.

In response, the rejection is respectfully traversed. As discussed earlier under Section 1 of the Applicants' arguments to these rejections, the Examiner has failed to establish the *prima facie* case of obviousness with respect to claim 1 with the combination of Bohn and Lewin. Any additional references used to further establish obviousness of a dependent claim is similarly deficient for at least the same reasons discussed above with respect to claim 1. The Applicant submits that such dependent claims also fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder. Therefore, the Applicant respectfully requests that rejection to claim 9 be withdrawn.

4. The Examiner has rejected claim 11 under 35 U.S.C. §103(a) as being unpatentable over Bohn and Lewin in further view of Zirngibl. Specifically, the Examiner has indicated that Bohn and Lewin present a modified data communication system without discussion of a specific wavelength for the upstream data channel. Additionally, the Examiner offers that Zirngibl teaches the use of a 1.3 μm wavelength for upstream data. Therefore, it would have been obvious to one of ordinary skill in the art to make use of 1.3 μm wavelength upstream data as to taught by Zirngibl in the modified system of Bohn and Lewin.

In response, the rejection is respectfully traversed. As discussed earlier under Section 1 of the Applicants' arguments to these rejections, the Examiner has failed to establish the *prima facie* case of obviousness with respect to claim 1 with the combination of Bohn and Lewin. Any additional references used to further establish obviousness of a dependent claim is similarly deficient for at least the same reasons discussed above with respect to claim 1. The Applicant

submits that such dependent claims also fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder. Therefore, the Applicant respectfully requests that rejection to claim 11 be withdrawn.

CONCLUSION

Thus, the Applicant submits that claims 1, 2, 4, 5, and 7-15 are in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If, however, the Examiner believes that there are any unresolved issues requiring adverse final action in any of the claims now pending in the application, it is requested that the Examiner telephone Mr. Eamon J. Wall at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

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